

AMENDMENTS TO THE DRAWINGS

Replacement drawing sheet number 4 of 13, comprising Figure 3, is appended to the end of this document. Figure 3 has been amended to remove highlighting, to conform with changes made to the specification.

REMARKS

Claims 59-121 were prior pending in the application. Claims 63, 64, 75, 76, 83-87, 92-95, 97-99, 102-105, 108, 109, 114-117, 120, and 121 were indicated allowable.

The present Amendment makes the following changes:

- Claims 59-60, 62-63, 65-66, 68-69, 72-74, 85, 88-91, 93, 101, and 110 are currently amended;
- Claims 61, 64, 67, 70, 71, 75, 76, 86, 87, 92, 94-104, 106, 112, 116, and 118 are unchanged;
- Twenty new claims are added (122-141); and
- Twenty prior claims are cancelled (77-84, 105, 107-109, 111, 113-115, 117, and 119-121).

No new matter is added by the claim amendments or new claims, as can be shown in the attached Table of Claims (attached hereto as Appendix C) tracing claim dependencies.

The Final Office Action rejected claims 59-62, 65-74, 77-82, 88-90, 100, 101, 106-107, 112-113, and 118 -119 and objected to claims 91, 96, and 110 -111.

Entry of the Amended and New claims is respectfully requested.

Examiner Interview

Applicants thank the Examiner for her time and assistance during recent telephonic interviews aimed at finalizing the amendments and responding to the Examiner's objections.

Specification

The Examiner requested updating of the specification to reflect changes in newly submitted drawings. Applicants draw the Examiner's attention to the Amendment filed February 16, 2010, where the following sentence was deleted in the Brief Description of the Figures for Figure 3: "Amino acid residues sharing identity are highlighted."

The specification was carefully reviewed for text describing the amended Figures 2, 3, and 5. The specification has been amended to conform to the Figures.

Drawings

Figure 3 is corrected to remove highlighting in conformance with the changes to the specification, and a replacement sheet containing corrected Figure 3 is appended at the end of this document.

Claim Objections

Correction of informalities in claims 59, 91, 96, 110, and 111 was suggested to remove Examiner's objections to the claims: In claim 59, the Examiner suggests "to" should be inserted before "any". Claim 59 is amended as suggested by the Examiner. Claim 91 is amended to remove dependency from two claims.

Claim 110 is amended to replace the word "cereal" with "legume" and no longer duplicates claim 104. Claim 111 is cancelled. Dependency of claim 93 is amended.

With the amendments discussed above, all pending claims are considered to be in allowable form.

Claim Rejections - 35 USC § 112, second paragraph

Claims 65-74 and 77-82 were rejected under 35 U.S.C. 112, second paragraph, as indefinite, citing claims 65, 66, 69, and 72 as lacking antecedent basis for the term, "protein". Claims 65, 66, 69, and 72 are amended to refer to replace "protein" with the term "polypeptide". Claims 65-74 and 77-82 are considered to be in allowable form. Removal of this rejection is respectfully requested.

Claim Rejections - 35 USC § 102

A. Anticipation by Madsen

Claims 59, 61, 65, 67 and 69-71 were rejected under 35 U.S.C. 102(a) as anticipated by *Madsen et al.*, 2003 (*Nature* 425:637-640). The Examiner notes that *Madsen* teaches sequences having 100% identity to SEQ ID NOs: 6-8, 11, 12, 15, 30 and 31; and 87% identity to SEQ ID NO: 32.

Applicants respectfully traverse this rejection. *Madsen* was published on October 9, 2003 after the priority date of July 3, 2003. The two priority documents (Danish application and U.S. provisional application) each disclose SEQ ID NOs: 6-8, 11, 12, 15, 30, 31 and 32. Although the *Medicago truncatula* sequence was not identified as SEQ ID NO: 32 in the Provisional or Danish priority applications, the sequence is disclosed in Figure 3 of the priority documents and of the present application. In the current application, the sequence disclosed in Figure 3 is assigned SEQ ID NO:32. Page 9 of the Priority applications explains that Figure 3 shows the aligned amino acid sequence of LjNFR5, PsSYM10, and *Medicago truncatula*. Applicants' priority date of July 3, 2003 is therefore properly claimed for the sequence of SEQ ID NO:32, as well as SEQ ID NOs: 6-8, 11, 12, 15, 30 and 31.

NFR5 polypeptide orthologues for *Glycine Max* (soybean) and *Phaseolus vulgaris* (black bean) are first disclosed in the PCT Application filed July 2, 2004, this case being the National stage of the PCT. Example 1.b.6 at pages 32-33 of the U.S. application describes isolation and sequence comparison of these molecules. SEQ ID NOs: 40 and 48 share about 73% and 70% sequence identity with Lotus NFR5 polypeptide SEQ ID NO:8 (See Table 2 at page 56). Although not disclosed in the Priority documents, SEQ ID NOs: 40 and 48 are not anticipated by any of the cited art. A BLAST analysis for each of SEQ ID NO: 40 and 48 was performed on September 27, 2010. The results are attached as Appendix A and B, showing that the non-redundant GenBank database contained no polypeptide sequences with 80% or greater identity to SEQ ID NOs: 40 or 48 before June 14, 2007, years after the PCT filing date of July 2, 2004.

At least because SEQ ID NOs: 6-8, 11-12, 15 and 30-32 were disclosed in the priority documents before the publication of *Madsen*, and because SEQ ID NOs: 40 and 48 are not taught or suggested in the prior art, Applicants assert *Madsen* is not prior art to the instant claims. Claims 59, 61, 65, 67 and 69-71 are considered to be in allowable form. Removal of this rejection is respectfully requested.

B. Anticipation by Radutoiu

Claims 60, 62, 66, 68, 72-74, 80-82, 88-90, 100, 101, 106, 107, 118 and 119 are rejected under 35 U.S.C. 102(a) as being anticipated by *Radutoiu et al.*, 2003 (*Nature* 425:585-592). The Examiner notes that *Radutoiu* teaches sequences having 100% identity to SEQ ID NOs: 21-24 and 99% identity to SEQ ID NO:25.

Radutoiu was published in October 9, 2003 after Applicants' provisional application was filed on July 3, 2003. SEQ ID NOs: 21-25 were all disclosed in the priority documents (Danish application and U.S. provisional application), for example, in the Sequence Listing provided. Because sequences 21-25 were disclosed in the provisional application before the publication of *Radutoiu*, Applicants assert that *Radutoiu* is not prior art to the instant claims.

Claims 60, 62, 66, 68, 72-74, 80-82, 88-90, 100, 101, 106, and 118 are considered to be in allowable form. Claims 107 and 119 are cancelled to balance newly added claims. Removal of this rejection is respectfully requested.

C. Anticipation by Limpens

Claims 60, 66, 72, 80, 88, 100 and 112 are rejected under 35 U.S.C. 102(a) as being anticipated by *Limpens et al.*, 2003 (*Science* 302:630-633 (previously cited)). The Office Action asserts "Limpens teaches a sequence which has 85% [identity] to SEQ ID NO:54." The Office notes that SEQ ID NO: 54 was first disclosed in the instant application, and accords priority for this sequence as July 2, 2004, the filing of the PCT application (reciting the sequence).

To speed prosecution, Applicants amended the claims to require at least 90% amino acid sequence identity to SEQ IDs 52 and 54. Support for this amendment is found at least at page 6 of the specification:

“Substantially identical refers to two nucleic acid or polypeptide sequences that have at least about 60%, preferably about 65%, more preferably about 70%, more preferably about 70%, further more preferably about 80%, most preferably about 90% or about 95% nucleotide or nucleic acid identity when aligned for maximum correspondence over a comparison window as measured using one of the sequence comparison algorithms given herein, or by manual alignment and visual inspection.” Page 6, paragraph [0067]

Conclusion

In conclusion, Applicants priority documents were each filed on July 3, 2003. As such, references dated after July 3, 2003 are not prior art to the sequences disclosed in the prior art documents (SEQ ID NOS: 1-32). Removal of rejections based on the inventors' publications, *Madsen* 2003 and *Radutoiu* 2003 are respectfully requested.

Limpens 2003 is cited for disclosing a sequence that has at least 80% sequence identity to SEQ ID NO: 54. SEQ ID NOS: 52 and 54 are first disclosed in the PCT publication filed July 2, 2004. Applicants have amended the claims to require at least 90% amino acid sequence identity to SEQ ID NOS: 52 or 54. *Limpens* does not disclose or suggest a sequence having at least 90% amino acid sequence identity to SEQ ID NOS: 52 or 54. Removal of rejections based on the *Limpens* reference is respectfully requested.

Applicants have added new independent claims reciting a transgenic plant comprising a transgene encoding each of the polypeptide sequences recited in claims 59, 60, and 122.

In conclusion, all of the claims remaining in this application should now be seen to be in condition for allowance. A prompt notice to that effect is respectfully solicited. If there

are any remaining questions, the Examiner is requested to contact the undersigned at the number listed below.

Respectfully submitted,
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